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Congenital Cardiology Solutions

EXTRACARDIAC FONTAN COMPLETION WITH AUTOLOGOUS PERICARDIAL PEDICLE: FEASIBILITY AND OUTCOME IN CHILDREN LESS THAN 2 YEARS OF AGE

ACC Moderated Poster Contributions
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Background: Children with congenital heart disease who require single ventricle palliation may need to reach certain growth parameters to be eligible for Fontan palliation. Extracardiac Fontan completion with autologous pericardial pedicle (EFCAPP) could potentially be performed in children of any age. We assessed the feasibility and intermediate outcomes of EFCAPP in children less than two years of age (Group A) as compared to older patients (Group B).

Methods: A single-center, retrospective chart review was performed on all 160 patients who underwent EFCAPP from 1995-2010. Demographics, perioperative variables, and outcomes were compared between Group A (mean age 22.1 ± 1.6 months) (n1 = 41, 26%) and Group B (43.8 ± 28.5 months).

Results: The most common diagnoses were hypoplastic left heart syndrome (HLHS), tricuspid atresia (TA), and double outlet right ventricle (DORV) for both groups. Demographics, hemodynamics, and perioperative findings were similar between Groups A and B except mean pulmonary artery pressure (12 ± 2.7 mmHg vs 10.9 ± 2.7, $p = 0.03$) and weight and height at Fontan completion (11.3 ± 1.4 kg vs 16.1 ± 8.8, $p < 0.001$ and 81.9 ± 5.0 cm vs 96.3 ± 15.4, $p < 0.001$, respectively). Cardiopulmonary bypass time (121.9 ± 21 mins vs 126.6 ± 29.3, $p > 0.05$) and placement of Fontan fenestration were similar between groups (2 vs 3, $p > 0.05$). There were two in-hospital early deaths (<30 days) in Group B and none in Group A ($p > 0.05$). Average length of pleural drainage (15 ± 11.3 days vs 17.8 ± 16.7, $p = 0.37$), hospital length of stay (6.2 ± 6.2 days vs 6.3 ± 6.4, $p = 0.93$), and mean follow up (33.2 ± 56.9 months vs 51.6 ± 50.7, $p = 0.35$) were similar between groups. Oxygen saturation, somatic growth, and arrhythmias after EFCAPP did not differ significantly between groups.

Conclusion: Extracardiac Fontan completion with autologous pericardial pedicle can be performed safely in children less than 2 years of age with similar intermediate outcomes as compared to older children. Long-term studies are needed to determine whether Fontan completion at an early age resulting in improved oxygen saturation may impact long-term survival, growth, and quality of life of those patients.